Access DB# 184256

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 4-4-06
Art Unit: 1752 Phone Number 30 2-1373 Serial Number: 10/789,055
Mail Box and Bldg/Room Location: 4D60 (Rem.) Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Please see B.b

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

Please search for a photoresist composition that contains any of these compounds (Formulas 3 - 7) listed in cl. # 13.

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Ctr.
APR 5 RECD
Pat. & T.M. Office

****

STAFF USE ONLY

Searcher: SH
Searcher Phone #: _____
Searcher Location: _____
Date Searcher Picked Up: _____
Date Completed: 4/6/06
Searcher Prep & Review Time: 10
Clerical Prep Time: 10
Online Time: 50

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) 2
Bibliographic _____
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN $526.13
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

PTO-1590 (8-01)

AMENDMENTS TO THE CLAIMS:

Please cancel claims 1-12 and 17-20 without prejudice.

Please amend claims 13-16 and 21-24, as follows.

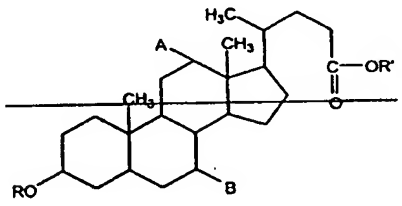
Please add new claims 25-28, as follows.

Claims 1-12 (Canceled)

13. (Currently Amended) A resist flow process for forming a photoresist pattern comprising the steps of:

(a) forming a first photoresist pattern on a substrate using a photoresist composition comprising a photoresist polymer, a photo acid generator, an organic solvent, and an additive ~~of following Formula 1~~ selected from the group consisting of compounds of following Formulas 3 to 7:

~~Formula 1~~



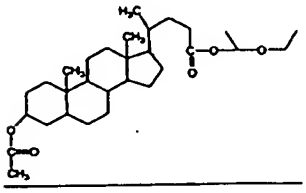
~~wherein, A is H or OR",~~

~~B is H or OR'", and~~

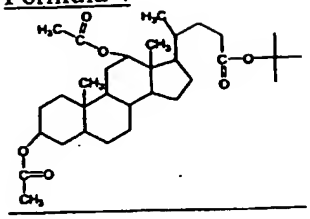
~~R, R', R" and R'" are independently selected from the group consisting of C_1-C_{10} alkyl, C_1-C_{10} alkoxyalkyl, C_1-C_{10} alkylcarbonyl, and C_1-C_{10} alkyl containing at least one hydroxyl group (-OH),~~

~~and~~

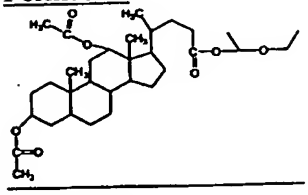
Formula 3



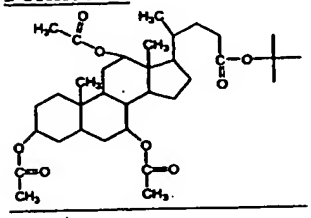
Formula 4



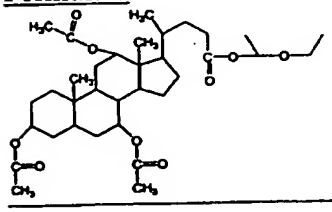
Formula 5



Formula 6



Formula 7



and

(b) ~~producing~~ performing a resist flow process onto the first photoresist pattern to obtain a second photoresist pattern ~~from said first photoresist pattern using a resist flow process~~.

14. (Previously Presented) The resist flow process according to claim 13, wherein said step (a) further comprises the steps of:

(i) coating said photoresist composition on said substrate to form a photoresist film, wherein said substrate is a semiconductor devise; and

(ii) producing said first photoresist pattern using a lithography process.

15. (Previously Presented) The resist flow process according to claim 13, wherein said first and second photoresist pattern comprises a contact hole pattern.

UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

CONFIRMATION NO. 9165

Bib Data Sheet

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/789,055	02/27/2004 RULE	430	1752	30205/37328A

APPLICANTS

Min Ho Jung, Ichon-shi, KOREA, REPUBLIC OF;

Sung Eun Hong, Ichon-shi, KOREA, REPUBLIC OF;
Jae Chang Jung, Ichon-shi, KOREA, REPUBLIC OF;Geun Su Lee, Ichon-shi, KOREA, REPUBLIC OF;
Ki Ho Baik, Ichon-shi, KOREA, REPUBLIC OF;

** CONTINUING DATA **********

This application is a DIV of 09/878,803 06/11/2001 PAT 6,770,414
SJL

** FOREIGN APPLICATIONS **********

REPUBLIC OF KOREA 2000-32984 06/15/2000 SJL

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 05/19/2004

Foreign Priority claimed ☑ yes ☐ no 35 USC 119 (a-d) conditions met ☑ yes ☐ no ☐ Met after Allowance Verified and Acknowledged Examiner's Signature SJL Initials	STATE OR COUNTRY KOREA, REPUBLIC OF	SHEETS DRAWING 2	TOTAL CLAIMS 12	INDEPENDENT CLAIMS 1

ADDRESS
04743
MARSHALL, GERSTEIN & BORUN LLP
233 S. WACKER DRIVE, SUITE 6300
SEARS TOWER
CHICAGO , IL
60606

TITLE
Additive for photoresist composition for resist flow process

		☐ All Fees

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=> d his ful

     (FILE 'HOME' ENTERED AT 13:26:39 ON 06 APR 2006)

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                D ALL
                SEL RN

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                210040-28-1/BI OR 221172-15-2/BI OR 253157-23-2/BI OR
                33628-48-7/BI OR 395666-20-3/BI OR 395666-21-4/BI OR
                395666-22-5/BI OR 395666-23-6/BI OR 395666-24-7/BI OR
                4057-84-5/BI OR 434-13-9/BI OR 52840-09-2/BI OR
                75-65-0/BI)
                D SCAN
L3            3 SEA ABB=ON  PLU=ON  L2 AND PMS/CI
L4           12 SEA ABB=ON  PLU=ON  L2 NOT L3
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                D L4 1-12 RN STR

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L9            3 SEA ABB=ON  PLU=ON  L2 AND L8

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                D SCAN
L13           3 SEA ABB=ON  PLU=ON  L2 AND L12
                D SCAN

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L15          14 SEA ABB=ON  PLU=ON  L12
L16          10 SEA ABB=ON  PLU=ON  L13
L17          14 SEA ABB=ON  PLU=ON  L14 OR L15
L18             QUE ABB=ON  PLU=ON  RESIST OR RESISTS OR PHOTORESIST?
                OR PHOTOMASK? OR (PHOTO# OR POSITIVE OR NEGATIVE)(A)(RE
                SIST# OR LITHOG? OR MASK?)
L19          11 SEA ABB=ON  PLU=ON  L17 AND L18
L20           3 SEA ABB=ON  PLU=ON  L17 NOT L19



=> => d que stat l19
L6              STR
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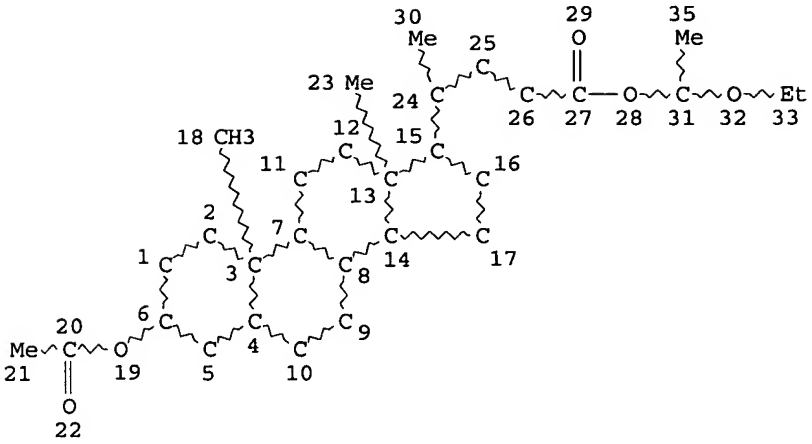

NODE ATTRIBUTES:
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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

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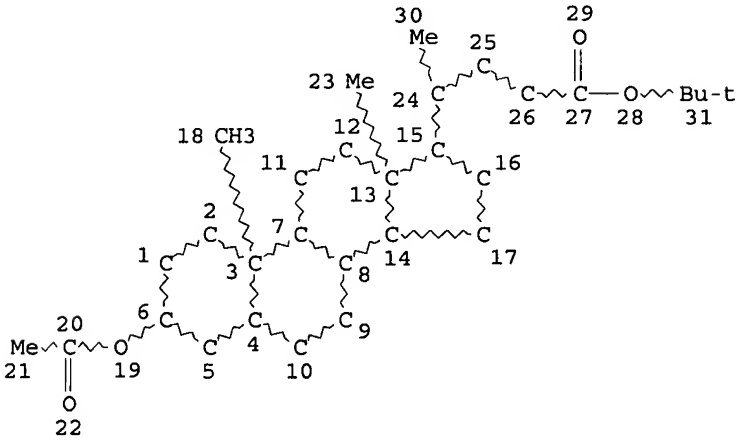

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DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 31

STEREO ATTRIBUTES: NONE

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L15 14 SEA FILE=HCAPLUS ABB=ON PLU=ON L12
L17 14 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 OR L15
L18 QUE ABB=ON PLU=ON RESIST OR RESISTS OR PHOTORESIST? OR PHOTOMASK? OR (PHOTO# OR POSITIVE OR NEGATIVE)(A)(RESIST# OR LITHOG? OR MASK?)

L19 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 AND L18

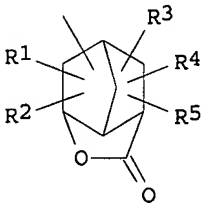
=> d l19 1-11 ibib abs hitstr hitind

L19 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:769997 HCAPLUS
DOCUMENT NUMBER: 137:302220
TITLE: Positive-working **photoresist** composition containing acid decomposable resin having lactone structure and polycyclic dissolution inhibitor containing protected carboxylic acid group
INVENTOR(S): Uenishi, Kazuya; Aogo, Toshiaki; Sato, Kenichiro
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 79 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002296779	A2	20021009	JP 2001-100300	2001 0330
TW 594411	B	20040621	TW 2002-91106292	2002 0329
US 2003031950	A1	20030213	US 2002-109872	2002 0401
US 6962766	B2	20051108		

PRIORITY APPLN. INFO.: JP 2001-100300 A 2001 0330

GI



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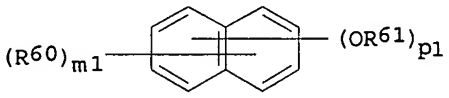

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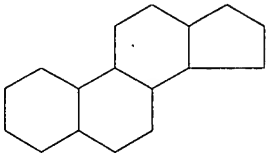


III

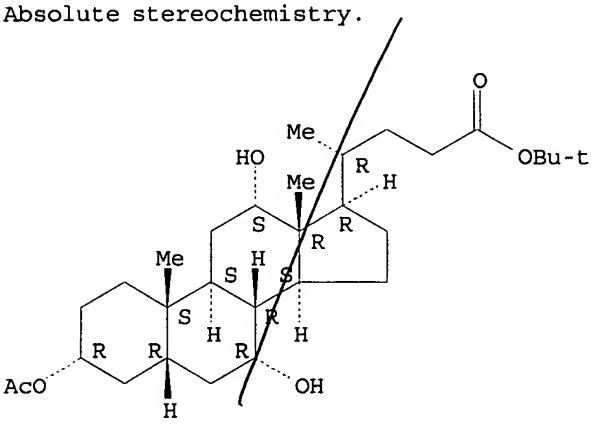
AB The pos.-working **photoresist** composition comprises (a) a photoacid, (b) a resin having sp. lactone structures which decomps. upon contacting an acid, for example, I (R1-5 = H, alkyl, cycloalkyl, alkenyl), resulting in increasing the alkaline solubility, and

(c) ≥1 protected carboxylic acid group-containing polycyclic dissoln. inhibitor represented by R[X(CR51R52)q1COOR']n1, II (R51,52 = H, alkyl; R' = acid decomposable group; R = bridged hydrocarbon, unsatd. hydrocarbon, n1 valent residue including naphthalene ring; n1 = integer 1-4; q1 = integer 0-10; R60 = alkyl, halo; R61 = acid decomposable group; m1 = integer 0-4; and p1 = integer 1-4), and III. The pos.-working **photoresist** composition provided excellent resolution in trench and contact hole in a semiconductor device fabrication.

IT **130782-09-1 172615-57-5 421555-80-8 469886-40-6**
RL: TEM (Technical or engineered material use); USES (Uses) (dissoln. inhibitor; pos.-working **photoresist** composition containing)

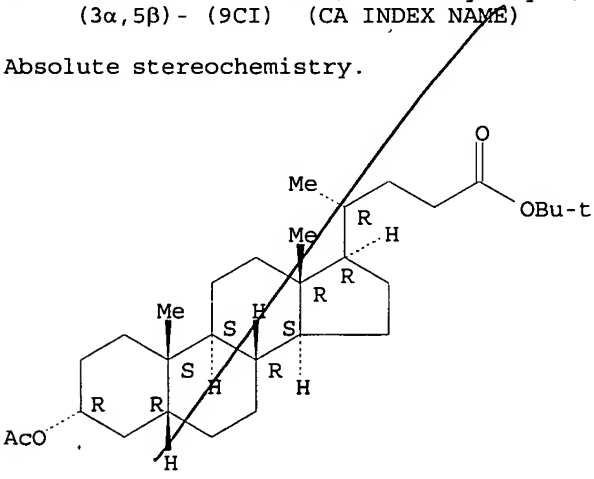
RN 130782-09-1 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-7,12-dihydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



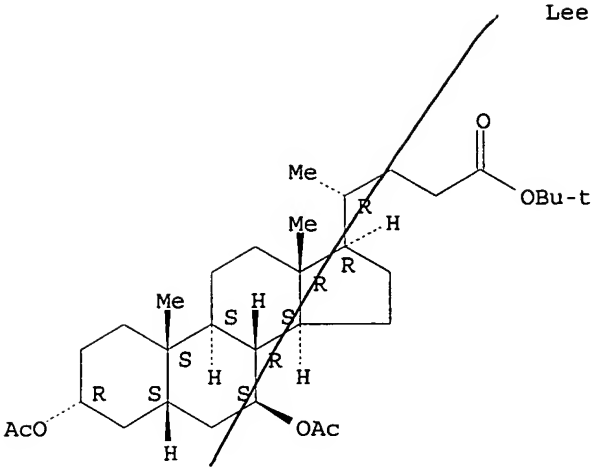
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



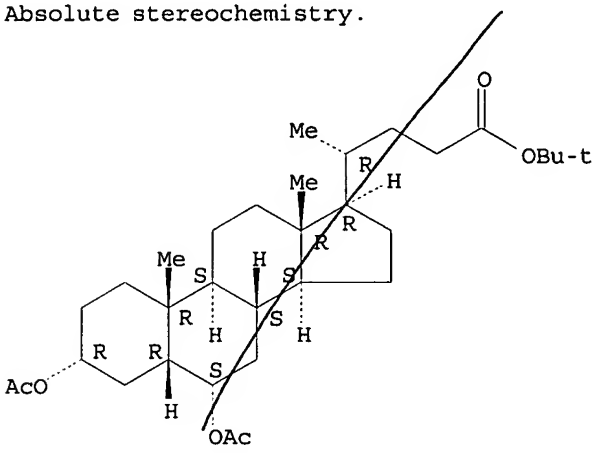
RN 421555-80-8 HCAPLUS
CN Cholan-24-oic acid, 3,7-bis(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,7β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 469886-40-6 HCAPLUS
CN Cholan-24-oic acid, 3,6-bis(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,6α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-039
ICS C08K005-00; C08L101-00; G03F007-004; G03F007-20; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST pos **photoresist** lactone structure resin polycyclic dissoln inhibitor; photoacid **photoresist** semiconductor device fabrication
IT **Photoresists**
(Pos.-working **photoresist** composition containing acid decomposable resin having lactone structure and polycyclic dissoln. inhibitor containing protected carboxylic acid group)
IT Semiconductor device fabrication
(pos.-working **photoresist** composition for)
IT 115298-62-9 115311-03-0 **130782-09-1**
172615-57-5 207512-00-3 251365-75-0 421555-75-1
421555-78-4 **421555-80-8** 421555-83-1 455901-88-9
469886-35-9 469886-36-0 **469886-40-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; pos.-working **photoresist** composition containing)
IT 66003-78-9 116808-67-4 144089-15-6 144317-44-2 153698-46-5
177786-96-8 177786-98-0 191981-93-8 252937-66-9
258341-98-9 258342-00-6 258872-05-8 270563-93-4
301525-08-6 312386-77-9
RL: TEM (Technical or engineered material use); USES (Uses)

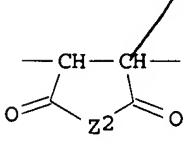
(photoacid; pos.-working **photoresist** composition containing)
IT 157692-53-0P, tert-Butyl deoxycholate
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of dissoln. inhibitor for pos.-working **photoresist** composition)
IT 216987-27-8P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of dissoln. inhibitor for pos.-working **photoresist** composition)
IT 335163-71-8P 340964-24-1P 340964-31-0P 340964-38-7P
340964-44-5P 364736-20-9P 428516-13-6P 460754-14-7P
460754-15-8P 469886-27-9P 469886-28-0P 469886-29-1P
469886-30-4P 469886-31-5P 469886-32-6P 469886-33-7P
469886-34-8P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of resin for pos.-working **photoresist** composition)

L19 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:673045 HCAPLUS
DOCUMENT NUMBER: 137:224107
TITLE: Chemically amplified positive-working far-UV **photoresist** compositions suitable for halftone phase-shift masks
INVENTOR(S): Sato, Kenichiro; Uenishi, Kazuya
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 104 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002251011	A2	20020906	JP 2001-48782	2001 0223

PRIORITY APPLN. INFO.: JP 2001-48782 2001 0223

OTHER SOURCE(S): MARPAT 137:224107
GI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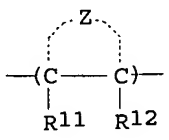
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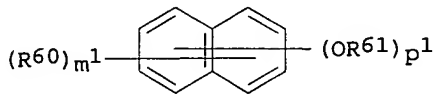

III

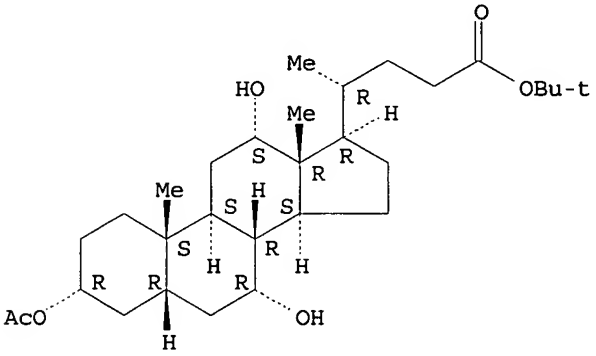
AB The compns. comprise (A) polymers with acid-decomposable groups

comprising repeating units CH(COXAR1)CH(COXAR2) (R1, R2 = H, cyano, OH, CO2H, etc.) and/or I (Z2 = O, NR3; R3 = H, OH, alkyl, haloalkyl, etc.) and other repeating units II (R11, R12 = H, cyano, halo, alkyl; Z = atomic group containing C2 linkage for forming alicyclic structure), (B) dissoln. inhibitors R[X(CR51R52)q1CO2R']n1 (X = O, S, NR53, single linkage; R51-53 = H, alkyl; R' = acid-decomposable group as CO2R'; R = n1-valent residue of bridged hydrocarbon, saturated hydrocarbon, naphthalene; n1 = 1-4; q1 = 0-10) or III (R60 = alkyl, halo; R61 = acid-decomposable group as OR61; m1 = 0-4; p1 = 1-4), and (C) imido sulfonate photoacid generators. The compns. may further contain sulfonium salt photoacid generators.

IT **130782-09-1 172615-57-5 421555-79-5 421555-80-8 455901-89-0 455901-90-3**
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

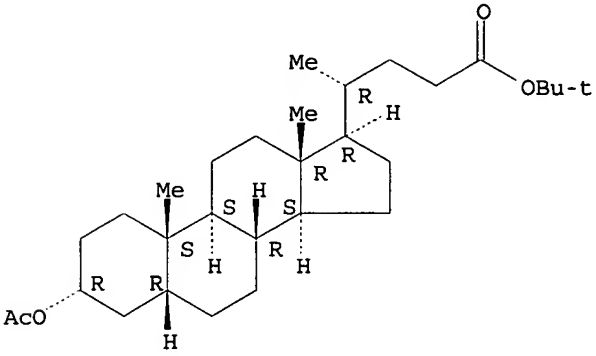
RN 130782-09-1 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-7,12-dihydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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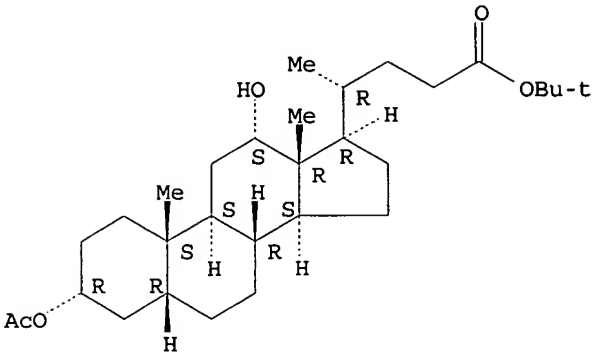
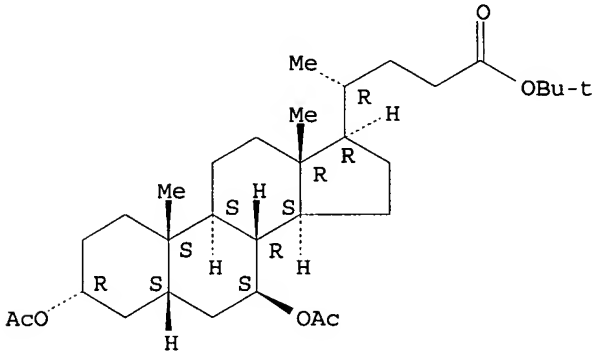
Absolute stereochemistry.



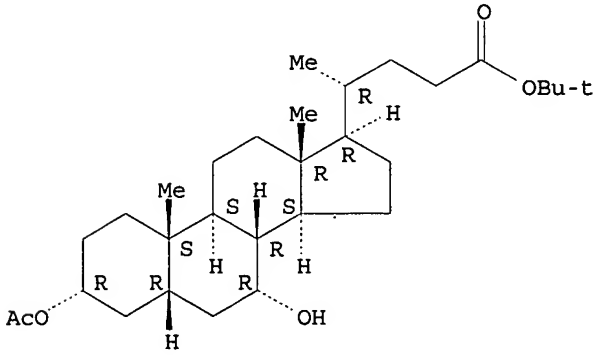
RN 421555-80-8 HCAPLUS
CN Cholan-24-oic acid, 3,7-bis(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,7β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



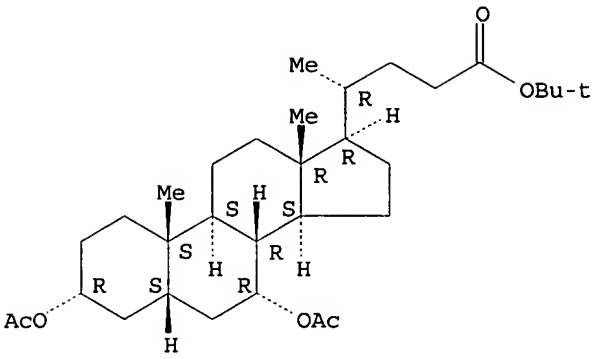
RN 455901-89-0 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-7-hydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 455901-90-3 HCAPLUS
CN Cholan-24-oic acid, 3,7-bis(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,7α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-039
ICS C08F222-04; C08F222-10; C08F222-38; C08F222-40; C08K005-00; C08L035-00; C08L045-00; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST pos **photoresist** far UV chem amplification; halftone phase shift **mask pos photoresist**; dissoln inhibitor far UV pos **photoresist**; imido sulfonate photoacid generator UV **photoresist**

IT Positive **photoresists**
(UV; chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

IT Cycloalkenes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymers; chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

IT 343629-51-6
RL: CAT (Catalyst use); USES (Uses)
(chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

IT 301525-09-7P 301525-13-3P 301525-15-5P 301525-19-9P
312386-49-5P 312386-66-6P 391232-36-3P 398140-57-3P
398140-59-5P 398140-60-8P 398140-62-0P 398140-64-2P
398140-65-3P 398140-68-6P 398140-69-7P 398140-71-1P
398140-73-3P 398140-74-4P 398140-75-5P 398140-76-6P
398140-77-7P 398140-78-8P 398140-79-9P 398140-81-3P
398140-82-4P 398140-84-6P 398140-85-7P 398140-86-8P
398140-87-9P 398140-88-0P, tert-Butyl norbornenecarboxylate-maleic anhydride-2-methyl-2-adamantyl acrylate-norbornenelactone acrylate copolymer 398140-90-4P 398140-91-5P 398140-92-6P
398140-93-7P 398140-94-8P 398140-95-9P 398140-97-1P
398140-98-2P 398140-99-3P 398141-00-9P 398141-03-2P
398141-04-3P 398141-05-4P 398141-06-5P 398141-07-6P
398141-10-1P 398141-11-2P 398141-13-4P 398141-14-5P
398152-52-8P 405509-30-0P 455901-72-1P 455901-73-2P
455901-74-3P 455901-75-4P 455901-76-5P 455901-77-6P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

IT 50337-75-2 115298-62-9 122752-67-4 **130782-09-1**
142524-71-8 157692-53-0 169228-97-1 169965-90-6
172615-57-5 251365-72-7 251365-74-9 332136-74-0
399041-04-4 421555-75-1 421555-76-2 421555-77-3
421555-79-5 **421555-80-8** 455901-78-7

455901-79-8 455901-80-1 455901-81-2 455901-82-3
455901-83-4 455901-84-5 455901-85-6 455901-86-7
455901-87-8 455901-88-9 **455901-89-0**
455901-90-3
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

IT 34684-40-7 83697-56-7 83697-60-3 85342-62-7 133710-62-0
171417-91-7 179419-32-0 252937-66-9 307531-76-6
324771-13-3 398457-15-3 455901-91-4
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

IT 144089-15-6 144317-44-2 177034-80-9 241806-75-7
258872-05-8 284474-28-8 338445-24-2 391232-40-9
398141-18-9 455901-93-6 455901-94-7 455901-95-8
455901-96-9 455901-98-1
RL: CAT (Catalyst use); USES (Uses)
(sulfonium photoacid generator; chemical amplified pos.-working far-UV **photoresists** suitable for halftone phase-shift masks)

L19 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:347848 HCAPLUS
DOCUMENT NUMBER: 136:361828
TITLE: Positive-working **photoresist** compositions containing norbornene-acrylate copolymers
INVENTOR(S): Sato, Kenichiro; Nakao, Hajime
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 80 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

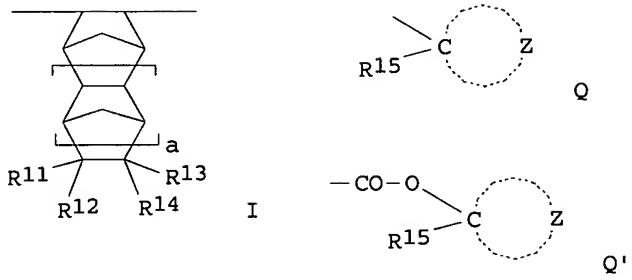
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002131917	A2	20020509	JP 2001-169802	20010605
TW 548521	B	20030821	TW 2001-90113799	20010607
PRIORITY APPLN. INFO.:			JP 2000-174037 A	20000609
			JP 2000-186431 A	20000621
			JP 2000-206812 A	20000707
			JP 2000-206890 A	20000707
			JP 2000-211414 A	20000712

JP 2000-215441 A 2000 0717

JP 2000-248658 A 2000 0818

OTHER SOURCE(S): MARPAT 136:361828

GI



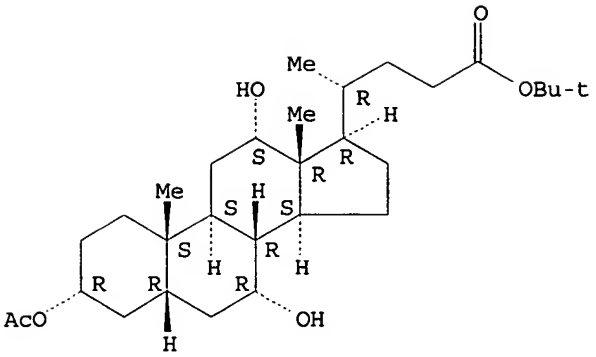
AB The compns., which show wide defocus latitude, reduced line edge roughness, and high resolution, contain (A) resin which increases its solubility in alkaline developers upon reaction of acids and contain (a) a repeating unit I [R11-R14 = H, (un)substituted alkyl; a = 0, 1] and (b) CH2CR1(ACO2W) (R1 = H, Me; A = direct bond, alkylene, cycloalkylene, O, ether group, thioether group, O, ester group; W = Q, CR16R17R18, CHR20OR19, CR23R25CR21:CR22R24, R26R29CHR27COR28, Q1; R15 = Me, Et, Pr, CHMe2, Bu, CH2CMe2, CHMeEt; Z = atomic group required to form an alicyclic ring; R16-R20 = C1-4 linear or branched alkyl, alicyclyl; ≥1 of R16-R18, R19 or R20 = alicyclyl; R21-R25 = H, C1-4 linear or branched alkyl, alicyclyl; ≥1 R21-R25 = alicyclyl; R23 or R25 = C1-4 linear or branched alkyl, alicyclyl; R26-R29 = C1-4 linear or branched alkyl, alicyclyl; ≥1 of R26-R29 = alicyclyl), (B) compds. which generate acids upon irradiation of actinic ray or radiation, and optionally (C1) R[X(CR51CR52)qCO2R1]n (X = O, S, NR53, direct bond, R53 = H, alkyl; CO2R1 = acid-decomposable group; R = n-valent bridged hydrocarbon ring, saturated cyclic hydrocarbon ring, naphthalene ring; n = 1-4; q = 0-10), (C2) naphthalene derivs. II (R60 = alkyl, halo; OR61 = acid-decomposable group; m = 0-4; p = 1-4), or (C3) steroid compds. which contain ≥2 substituents having ≥1 carboxyl group protected with acid-labile group. The acid generators may be imide sulfonate compds. or diazodisulfonic acids (Markush structures are given) and optionally sulfonium salts. (C1)-(C3) work as dissoln. inhibitors and the compns. give high-resolution contact hole and trench patterns in fabrication of semiconductor devices.

IT **130782-09-1 172615-57-5 421555-79-5 421555-80-8 421555-81-9**
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

RN 130782-09-1 HCAPLUS

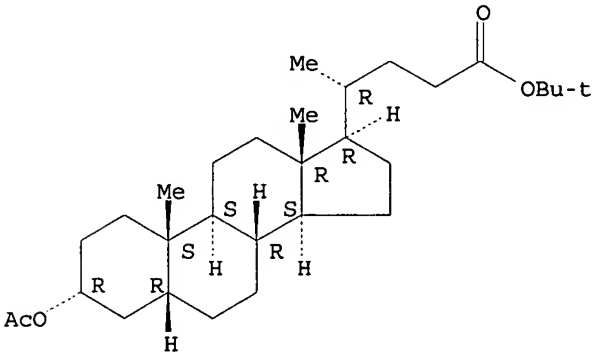
CN Cholan-24-oic acid, 3-(acetyloxy)-7,12-dihydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



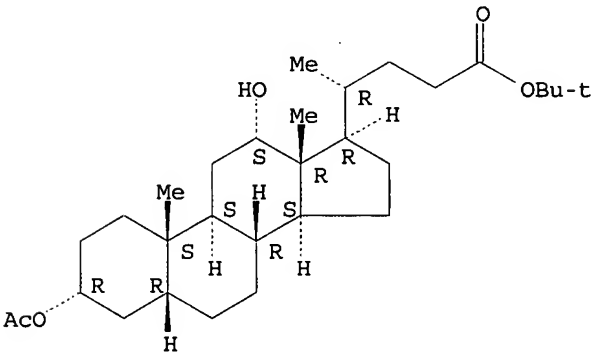
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



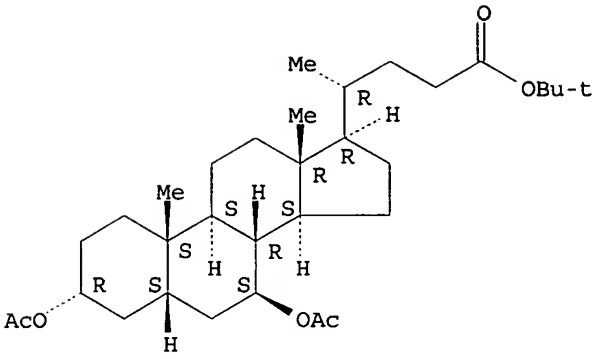
RN 421555-79-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-12-hydroxy-, 1,1-dimethylethyl ester, (3α,5β,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



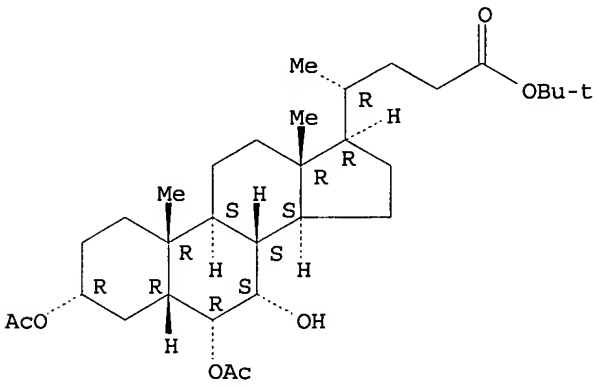
RN 421555-80-8 HCAPLUS
CN Cholan-24-oic acid, 3,7-bis(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,7β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 421555-81-9 HCAPLUS
CN Cholan-24-oic acid, 3,6-bis(acetyloxy)-7-hydroxy-, 1,1-dimethylethyl ester, (3α,5β,6α,7α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-039
ICS C08F232-08; G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST pos **photoresist** norbornene acrylate copolymer photoacid generator; dissoln inhibitor butyl deoxycholate glutaryl chloride copolymer
IT Polysiloxanes, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(KP 341; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)
IT Surfactants
(fluorine-containing or silicones; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)
IT Positive **photoresists**
(pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)
IT Ketones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(solvents; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)
IT 24556-20-5 115298-62-9 115311-03-0 **130782-09-1**
172615-57-5 207512-00-3 244634-41-1 343223-56-3
421555-75-1 421555-76-2 421555-77-3 421555-78-4
421555-79-5 421555-80-8 421555-81-9

421555-82-0 421555-83-1 421555-84-2
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

IT 321994-64-3P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(oligomeric, dissoln. inhibitor; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

IT 14159-45-6 28343-24-0 66003-78-9 81416-37-7 116808-67-4
138529-81-4 138529-84-7 138529-87-0 144089-15-6
144317-44-2 145612-66-4 153698-46-5 153698-67-0
157089-26-4 171417-91-7 177786-96-8 177786-98-0
179419-32-0 211517-08-7 241806-75-7 252937-66-9
258341-98-9 258341-99-0 258342-00-6 258872-05-8
260061-58-3 270563-93-4 284474-28-8 301525-08-6
307976-40-5 312386-77-9 324771-13-3 338445-26-4
338445-30-0 341979-02-0 343629-55-0 350249-87-5
391232-40-9 421555-68-2 421555-69-3 421555-70-6
421555-71-7 421555-72-8 421555-73-9 421555-74-0
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

IT 249562-07-0P 249562-17-2P, Maleic anhydride-2-methyl-2-adamantyl acrylate-norbornene copolymer 260448-02-0P, tert-Butyl acrylate-maleic anhydride-norbornene copolymer 351867-96-4P
421555-57-9P 421555-59-1P 421555-60-4P 421555-61-5P
421555-62-6P 421555-63-7P 421555-64-8P 421555-65-9P
421555-66-0P 421555-67-1P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

IT 484-47-9, 2,4,5-Triphenylimidazole 1122-58-3 6674-22-2, DBU
137462-24-9, Megafac F176 216679-67-3, Megafac R08
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate
97-64-3, Ethyl lactate 108-32-7, Propylene carbonate 110-43-0, 2-Heptanone 123-86-4, Butyl acetate 763-69-9 1320-67-8, Propylene glycol monomethyl ether 84540-57-8, Propylene glycol monomethyl ether acetate 98516-33-7, Propylene glycol monomethyl ether propionate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; pos.-working **photoresist** compns. containing norbornene-acrylate copolymers)

L19 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:99058 HCAPLUS
DOCUMENT NUMBER: 136:158842
TITLE: Additive for providing suitable property in **photoresist** flow step
INVENTOR(S): Chung, Min Ho; Hong, Sung Eun; Chung, Jae Chang; Paek, Ki Ho
PATENT ASSIGNEE(S): Hynix Semiconductor Co., Ltd., S. Korea
SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002040635	A2	20020206	JP 2001-182448	20010615
KR 2001112765	A	20011222	KR 2000-32984	20000615
US 2002022197	A1	20020221	US 2001-878803	20010611
US 6770414	B2	20040803		
TW 583502	B	20040411	TW 2001-90114387	20010614
US 2004166437	A1	20040826	US 2004-789055	20040227

PRIORITY APPLN. INFO.:

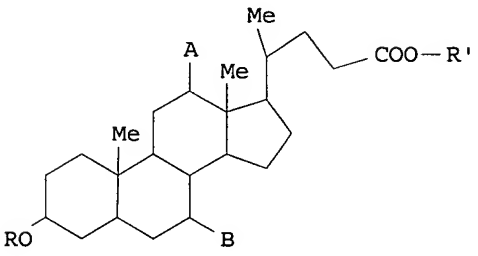
KR 2000-32984	A	20000615
US 2001-878803	A3	20010611

Pren. App.

D.P. ? → No

OTHER SOURCE(S): MARPAT 136:158842

GI



I

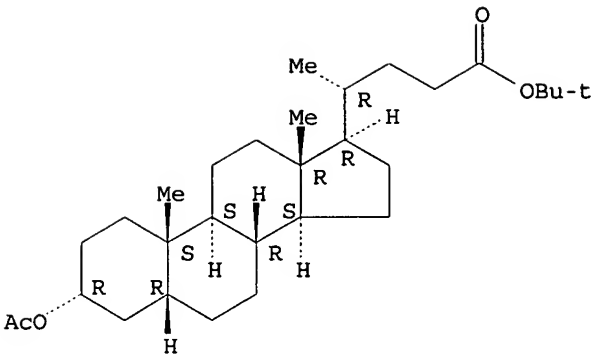
AB The additive having a low glass transition temperature is added to a **photoresist** composition containing a polymer having a high-glass transition temperature to provide smooth **photoresist** flow. The additive is represented by I (A = H, substituent; B = H, substituent; R, R' = C1-10 alkyl, alkoxyalkyl, alkylcarbonyl, etc.).

IT **172615-57-5P 395666-20-3P 395666-21-4P 395666-22-5P 395666-23-6P 395666-24-7P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(additive for providing suitable property in **photoresist** flow step)

RN 172615-57-5 HCAPLUS

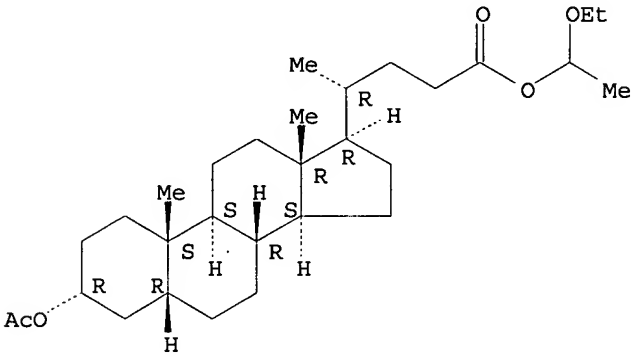
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



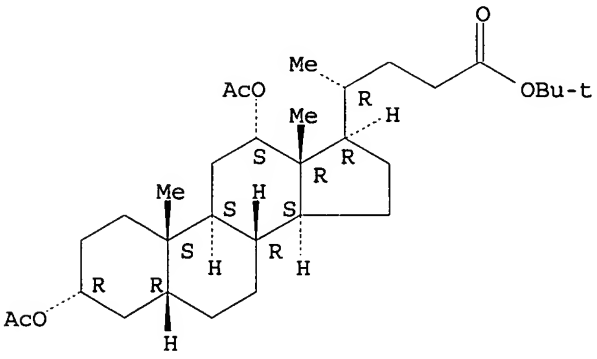
RN 395666-20-3 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1-ethoxyethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



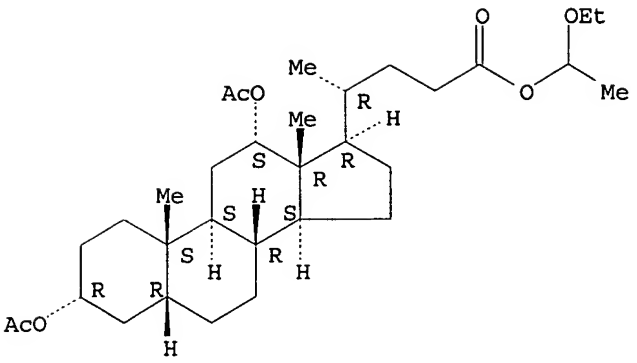
RN 395666-21-4 HCAPLUS
CN Cholan-24-oic acid, 3,12-bis(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



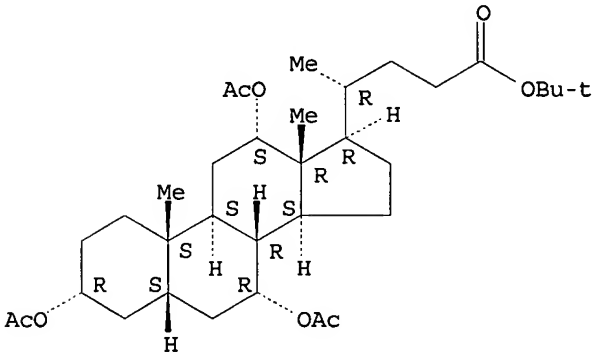
RN 395666-22-5 HCAPLUS
CN Cholan-24-oic acid, 3,12-bis(acetyloxy)-, 1-ethoxyethyl ester, (3α,5β,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



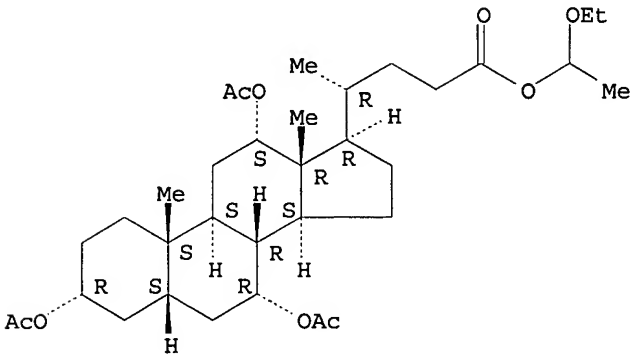
RN 395666-23-6 HCAPLUS
CN Cholan-24-oic acid, 3,7,12-tris(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 395666-24-7 HCAPLUS
CN Cholan-24-oic acid, 3,7,12-tris(acetyloxy)-, 1-ethoxyethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-004
ICS C08F222-06; G03F007-039; G03F007-40; H01L021-027; C08F232-04
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38
ST **photoresist** additive
IT **Photoresists**
(additive for providing suitable property in **photoresist** flow step)
IT 75-65-0, tert-Butyl alcohol, reactions 109-92-2, Ethylvinyl ether 434-13-9, Lithocholic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(additive for providing suitable property in **photoresist** flow step)
IT 4057-84-5P 33628-48-7P 52840-09-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(additive for providing suitable property in **photoresist** flow step)
IT **172615-57-5P 395666-20-3P 395666-21-4P 395666-22-5P 395666-23-6P 395666-24-7P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(additive for providing suitable property in **photoresist** flow step)
IT 210040-28-1P, tert-Butyl-5-norbornene-2-carboxylate-2-hydroxyethyl-5-norbornene-2-carboxylate-maleic anhydride-5-norbornene-2-carboxylic acid copolymer 221172-15-2P 253157-23-2P, tert-Butyl-5-norbornene-2-carboxylate-3-hydroxypropyl-5-norbornene-2-carboxylate-maleic anhydride-5-norbornene-2-carboxylic acid copolymer
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** from)

L19 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:686024 HCAPLUS
DOCUMENT NUMBER: 133:274240
TITLE: Acid-catalyzed positive-working **photoresist** compositions containing cyclic olefin polymers and hydrophobic nonsteroidal alicyclic or saturated steroidal additives.
INVENTOR(S): Varanasi, Pushkara Rao; Maniscalco, Joseph F.; Lawson, Margaret C.; Mewherter, Ann Marie; Jordhamo, George M.; Allen, Robert D.; Opitz, Juliann; Ito, Hiroshi; Wallow, Thomas I.; De Pietro, Richard A.
PATENT ASSIGNEE(S): International Business Machines Corp., USA
SOURCE: Ger. Offen., 18 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10009183	A1	20000928	DE 2000-10009183	2000 0226
US 6124074	A	20000926	US 1999-266341	1999 0311
CN 1267000	A	20000920	CN 2000-101840	2000 0202
CN 1272637	A	20001108	CN 2000-101839	2000

				0202
CN 1267001	A	20000920	CN 2000-101869	2000 0204
SG 90720	A1	20020820	SG 2000-1282	2000 0309

PRIORITY APPLN. INFO.:

US 1999-266341	A	1999 0311
US 1999-266342	A	1999 0311
US 1999-266343	A	1999 0311
US 1999-266344	A	1999 0311

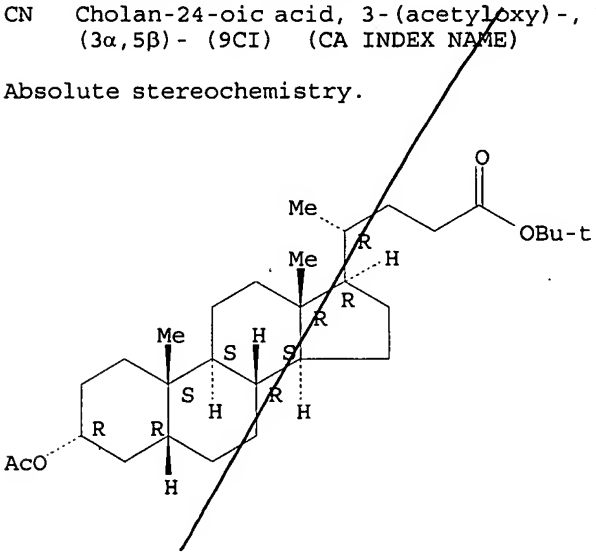
AB The title compns., which are used for exposure with radiation of 193 nm, are composed of cyclic olefin polymers; a photosensitive acid-generating compound; a bulky hydrophobic additive, which is essentially transparent to 193 nm radiation; and a compound selected from a hydrophobic, nonsteroidal, alicyclic component; a hydrophobic, nonsteroidal, multi-alicyclic component, which contains a number of acid-labile groups; and a saturated steroid. The compns. are developable in alkali solution and give **photoresist** structures having a high resolution and excellent resistance to etching. Thus, a typical composition containing propylene glycol monomethy ether acetate 38, a norbornenecarboxylic acid-tert-Bu norbenecarboxylate copolymer 4, di-tert-butylphenyliodonium perfluorooctanesulfonate 0.16, tetrabutylammonium hydroxide 0.008 weight% was coated on a Si wafer, dried, exposed to 193 nm radiation in a stepper, heat-treated and developed to give a high-resolution image.

IT **172615-57-5**
RL: TEM (Technical or engineered material use); USES (Uses)
(acid-catalyzed pos.-working **photoresist** compns. containing cyclic olefin polymers and hydrophobic nonsteroidal alicyclic or saturated steroidal additives)

RN 172615-57-5 HCAPLUS

CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST pos **photoresist** cyclic olefin polymer alicyclic compd steroid
IT Positive **photoresists**
(acid-catalyzed; **photoresist** compns. containing cyclic olefin polymers and hydrophobic nonsteroidal alicyclic or saturated steroidal additives)
IT 24556-20-5, Tert-Butyl adamantane-1-carboxylate 122752-67-4, tert-Butyl cholate 129532-67-8 157692-53-0, tert-Butyl deoxycholate 169965-90-6, tert-Butyl lithocholate **172615-57-5** 174215-72-6 296242-01-8 298222-03-4 298222-05-6 298222-06-7 298222-07-8
RL: TEM (Technical or engineered material use); USES (Uses)
(acid-catalyzed pos.-working **photoresist** compns. containing cyclic olefin polymers and hydrophobic nonsteroidal alicyclic or saturated steroidal additives)
IT 75-65-0, tert-Butyl alcohol, reactions 110-03-2, 2,5-Dimethyl-2,5-hexanediol 2094-72-6, Adamantane-1-carbonyl chloride
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(esterification; acid-catalyzed pos.-working **photoresist** compns. containing cyclic olefin polymers and hydrophobic nonsteroidal alicyclic or saturated steroidal additives)

L19 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:752380 HCAPLUS
DOCUMENT NUMBER: 132:17146
TITLE: Far-UV-sensitive positive-working **photoresist** composition having functionalized acrylate polymer
INVENTOR(S): Sato, Kenichiro; Aogo, Toshiaki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 87 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11327148	A2	19991126	JP 1999-66682	19990312
PRIORITY APPLN. INFO.:			JP 1998-61478 A	19980312

= 6,238,842

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The far-UV-sensitive pos.-working **photoresist** composition has (A) an active-ray sensitive acid-generating compound, (B) a resin containing a monovalent polycyclic aliphatic ring group I (R1-3 = alkyl, cycloalkyl, alkenyl, etc.; m2, m, n = 0, 1-5 integer)and an acid-sensitive alkali- solubility increasing group, and a compound II(X

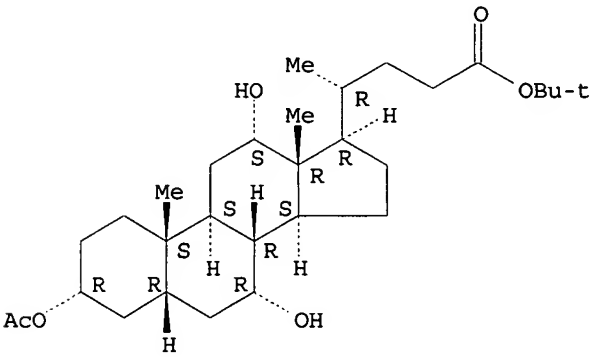
= O, S, _N(R53)-; R51-53 = H, alkyl; R' = acid-sensitive group; R = bridged hydrocarbon, naphthalene ring; n1 = 1-4 integer; q1 = 0-10 integer) or III (R60 = H, alkyl; R61 = acid-sensitive group; m1, p1 = 1-4 integer). The **photoresist** composition provides the excellent sensitivity, the high resolution, and the excellent pattern characteristics.

IT **130782-09-1**
RL: TEM (Technical or engineered material use); USES (Uses)
(far-UV-sensitive pos.-working **photoresist** composition having functionalized acrylate polymer)

RN 130782-09-1 HCAPLUS

CN Cholan-24-oic acid, 3-(acetyloxy)-7,12-dihydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-039
ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35

ST far UV pos **photoresist** compn acrylate polymer

IT Positive **photoresists**
(far-UV-sensitive pos.-working **photoresist** composition having functionalized acrylate polymer)

IT Acrylic polymers, preparation
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(far-UV-sensitive pos.-working **photoresist** composition having functionalized acrylate polymer)

IT 251365-67-0P 251365-69-2P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ar-UV-sensitive pos.-working **photoresist** composition having functionalized acrylate polymer)

IT 244176-33-8P 250598-43-7P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(far-UV-sensitive pos.-working **photoresist** composition having functionalized acrylate polymer)

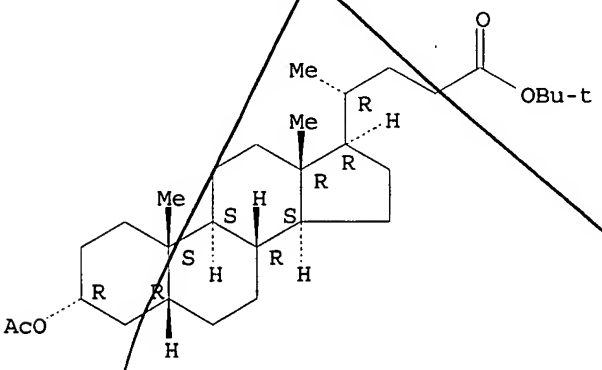
IT 251365-65-8P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(far-UV-sensitive pos.-working **photoresist** composition having functionalized acrylate polymer)

IT 79-10-7, 2-Propenoic acid, reactions 79-41-4, Methacrylic acid, reactions 83-44-3, Deoxycholic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(far-UV-sensitive pos.-working **photoresist** composition

having functionalized acrylate polymer)
IT 24556-20-5 **130782-09-1** 156301-83-6 169228-97-1
195057-82-0 244176-34-9 251365-70-5 251365-71-6
251365-72-7 251365-73-8 251365-74-9 251365-75-0
RL: TEM (Technical or engineered material use); USES (Uses)
(far-UV-sensitive pos.-working **photoresist** composition
having functionalized acrylate polymer)

L19 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:631733 HCAPLUS
DOCUMENT NUMBER: 127:313043
TITLE: Synthesis of Cycloolefin-Maleic Anhydride Alternating Copolymers for 193 nm Imaging
AUTHOR(S): Houlihan, F. M.; Wallow, T. I.; Nalamasu, O.; Reichmanis, E.
CORPORATE SOURCE: Lucent Technologies, Bell Laboratories, Murray Hill, NJ, 07974, USA
SOURCE: Macromolecules (1997), 30(21), 6517-6524
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A series of novel cycloolefin-maleic anhydride copolymers have been prepared and evaluated for 193 nm imaging applications. Free radical induced copolymn. of norbornene and maleic anhydride affords a hydrolytically robust alternating copolymer. Aqueous base solubility can be induced via incorporation of acrylic acid and/or acrylate esters that can be cleaved to afford the parent acid via acidolysis. The proportion of acrylate in the resulting terpolymers is a linear function of the starting monomer ratio. These terpolymers are thermally stable and hydrolytically robust. Due to their aqueous base solubility and UV transparency, they have potential in high resolution imaging applications. Sub-0.18 μm imaging has been demonstrated upon 193 nm imagewise exposure of selected materials.
IT **172615-57-5**
RL: NUU (Other use, unclassified); USES (Uses)
(dissoln. inhibitor; preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35
ST cycloolefin maleic anhydride copolymer imaging photolithog;

photoresist cycloolefin maleic anhydride copolymer

IT Cycloalkenes
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(polymers; preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT **Photoresists**
(preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT **172615-57-5**
RL: NUU (Other use, unclassified); USES (Uses)
(dissoln. inhibitor; preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT 157692-53-0P, tert-Butyl deoxycholate 169965-90-6P, tert-Butyl lithocholate
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(dissoln. inhibitor; preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT 197439-77-3P
RL: BYP (Byproduct); PREP (Preparation)
(lithog. evaluation of novel cycloolefin-maleic anhydride copolymer **photoresists**)

IT 111-78-4, 1,5-Cyclooctadiene 3760-14-3, 1,5-Dimethyl-1,5-cyclooctadiene 19111-23-0, 1,5,9-Cyclodecatriene
RL: RCT (Reactant); RACT (Reactant or reagent)
(lithog. evaluation of novel cycloolefin-maleic anhydride copolymer **photoresists**)

IT 57900-42-2, Triphenylsulfonium hexafluoroarsenate 66003-78-9, Triphenylsulfonium triflate
RL: TEM (Technical or engineered material use); USES (Uses)
(lithog. evaluation of novel cycloolefin-maleic anhydride copolymer **photoresists**)

IT 78-67-1, AIBN
RL: CAT (Catalyst use); USES (Uses)
(preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT 25212-41-3P, 1,5-Cyclooctadiene-maleic anhydride copolymer 26678-74-0DP, Maleic anhydride-norbornene copolymer, hydrolyzed 26678-74-0P, Maleic anhydride-norbornene copolymer 30607-66-0P 188885-53-2P, Acrylic acid-maleic anhydride-norbornene copolymer 195143-37-4P, Acrylic acid-tert-butyl acrylate-maleic anhydride-norbornene copolymer 197439-75-1P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

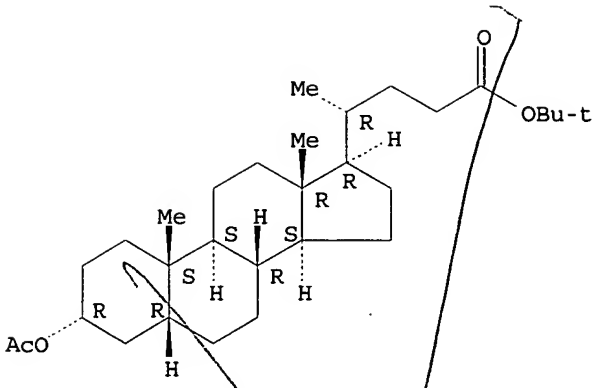
IT 79-10-7, 2-Propenoic acid, reactions 108-31-6, 2,5-Furandione, reactions 498-66-8, Bicyclo[2.2.1]hept-2-ene 1663-39-4, tert-Butyl acrylate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

IT 146915-07-3P 197439-76-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and lithog. evaluation of novel cycloolefin-maleic anhydride copolymers for **photoresist** imaging)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

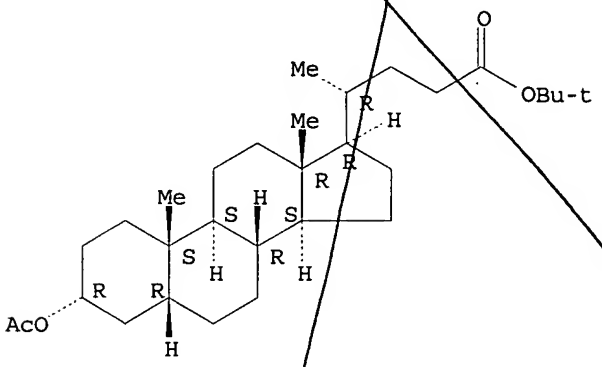
L19 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:522737 HCAPLUS
DOCUMENT NUMBER: 127:240842
TITLE: Recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins
AUTHOR(S): Houlihan, F. M.; Wallow, T.; Timko, A.; Neria, E.; Hutton, R.; Cirelli, R.; Nalamasu, O.; Reichmanis, E.
CORPORATE SOURCE: Bell Labs., Lucent Technols., Murray Hill, NJ, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1997), 3049(Advances in Resist Technology and Processing XIV), 84-91
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We report on our recent investigations on the formulation and processing of 193 nm single layer **photoresists** based on alternating copolymers of cycloolefins with maleic anhydride. **Resists** formulated with cycloolefin copolymers are compatible with 0.262 N tetramethylammonium developers, have excellent adhesion, sensitivity, etch resistance and thermal flow properties. The effect of polymer structure and composition, dissoln. inhibitor structure and loading as well as the effect of the photoacid generator on the **resist** dissoln. properties was investigated. Based on the results high contrast formulations were evaluated on a GCA XLS (NA=0.53, 4X reduction optics) deep-UV stepper to exhibit 0.27 μm L/S pair resolution with excellent photosensitivity. Based on the dissoln. properties and a spectroscopic examination of the **resist**, we have designed materials that show < 0.17 μm L/S pair resolution with 193 nm exposures. In this paper, the formulation methodol. will be detailed and the most recent results upon both with 248 and 193 nm irradiation will be described.
IT **172615-57-5 172615-57-5D**, polyester derivs. with difunctional acid or acid halides
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins)
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

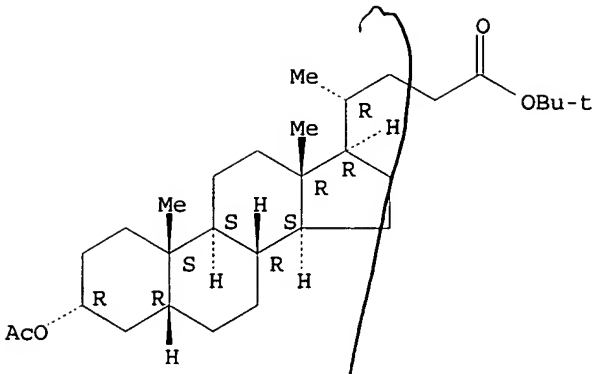


CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST cycloolefin norbornene dissoln inhibition alternating copolymer; deep UV **photoresist** submicron photolithog
IT **Photoresists**
(UV; recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins)
IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins)
IT Photolithography
(submicron UV; recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins)
IT 122752-67-4 122752-67-4D, polyester derivs. with difunctional acid or acid halides 157692-53-0 157692-53-0D, polyester derivs. with difunctional acid or acid halides 169965-90-6 169965-90-6D, polyester derivs. with difunctional acid or acid halides **172615-57-5 172615-57-5D**, polyester derivs. with difunctional acid or acid halides
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of

cycloolefins)
IT 57900-42-2, Triphenylsulfonium hexafluoroarsenate 66003-76-7, Diphenyliodonium triflate 66003-78-9, Triphenylsulfonium triflate 194999-85-4, Bis-(4-t-butylphenyl)iodonium nonaflate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins)
IT 188885-53-2 195143-37-4
RL: TEM (Technical or engineered material use); USES (Uses)
(recent advances in 193 nm single-layer **photoresists** based on alternating copolymers of cycloolefins)

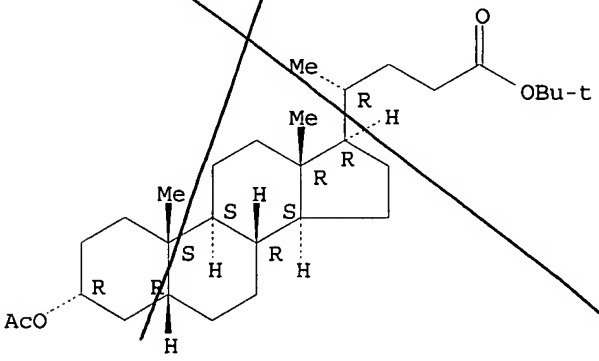
L19 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:471410 HCAPLUS
DOCUMENT NUMBER: 127:227302
TITLE: A commercially viable 193 nm single layer **resist** platform
AUTHOR(S): Houlihan, F. M.; Wallow, T.; Timko, A.; Neria, E.; Hutton, R.; Cirelli, R.; Kometani, J. M.; Nalamasu, O.; Reichmanis, E.
CORPORATE SOURCE: Bell Laboratories, Lucent Technologies, Murray Hill, NJ, USA
SOURCE: Journal of Photopolymer Science and Technology (1997), 10(3), 511-520
CODEN: JSTEEW; ISSN: 0914-9244
PUBLISHER: Technical Association of Photopolymers, Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We report on our recent investigations on the formulation and processing of 193 nm single layer **photoresists** based on alternating copolymers of cycloolefins with maleic anhydride. **Resists** formulated with cycloolefin copolymers are compatible with 0.262 N tetramethylammonium developers, have excellent adhesion, sensitivity, etch resistance and thermal flow properties. The effect of polymer structure and composition, dissoln. inhibitor structure and loading as well as the effect of the photoacid generator on the **resist** dissoln. properties was investigated. Based on the results high contrast formulations were evaluated on a GCA XLS (NA=0.53, 4X reduction optics) deep-UV stepper to exhibit 0.27 μm L/S pair resolution with excellent photosensitivity. Based on the dissoln. properties and a spectroscopic examination of the **resist**, we have designed materials that show <0.17 μm L/S pair resolution with 193 nm exposure on a ISI tool (NA=0.60, 10X reduction optics). In this paper, the formulation methodol. will be detailed and the most recent results upon both with 248 and 193 nm irradiation will be described.
IT **172615-57-5**
RL: TEM (Technical or engineered material use); USES (Uses)
(monomeric dissoln. inhibitor in high contrast deep UV **photoresist** composition)
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT **172615-57-5D**, condensation polymer with difunctional acid or acid halide
RL: TEM (Technical or engineered material use); USES (Uses)
(polymeric dissoln. inhibitor in high contrast deep UV **photoresist** composition)
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
ST cycloolefin norbornene maleic anhydride dissoln inhibition; deep UV photolithog etch resistance **photoresist**
IT **Photoresists**
(UV; com. viable 193 nm single layer **resist** platform)
IT Semiconductor devices
(com. viable 193 nm single layer **resist** platform)
IT Photolithography
(submicron UV; com. viable 193 nm single layer **resist** platform)
IT 122752-67-4 157692-53-0 169965-90-6 **172615-57-5**
RL: TEM (Technical or engineered material use); USES (Uses)
(monomeric dissoln. inhibitor in high contrast deep UV **photoresist** composition)
IT 194999-82-1P, Diphenyliodonium nonaflate
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoacid generator in high contrast deep UV **photoresist** composition)
IT 57900-42-2, Triphenylsulfonium hexafluoroarsenate 66003-76-7,

Diphenyliodonium triflate 66003-78-9, Triphenylsulfonium triflate 194999-85-4, Bis(4-t-butylphenyl)iodonium nonaflate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator in high contrast deep UV **photoresist** composition)

IT 194999-89-8 194999-90-1
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer component of high contrast deep UV **photoresist** composition)

IT 122752-67-4D, condensation polymer with difunctional acid or acid halide 157692-53-0D, condensation polymer with difunctional acid or acid halide 169965-90-6D, condensation polymer with difunctional acid or acid halide **172615-57-5D**, condensation polymer with difunctional acid or acid halide
RL: TEM (Technical or engineered material use); USES (Uses)
(polymeric dissoln. inhibitor in high contrast deep UV **photoresist** composition)

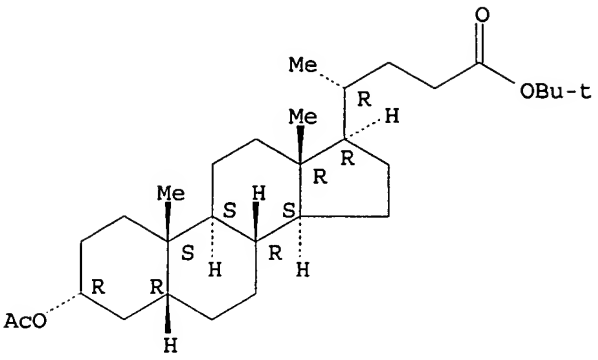
L19 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:147774 HCAPLUS
DOCUMENT NUMBER: 124:189530
TITLE: **Photoresist** composition for deep ultraviolet radiation and process for its use
INVENTOR(S): Allen, Robert David; DiPietro, Richard Anthony; Wallraff, Gregory Michael
PATENT ASSIGNEE(S): International Business Machines Corp., USA
SOURCE: Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 690348	A2	19960103	EP 1995-109773	1995 0623
EP 690348 R: DE, FR, GB	A3	19960515		
US 5580694	A	19961203	US 1994-266044	1994 0627
JP 08015865	A2	19960119	JP 1995-128606	1995 0526
JP 3243778	B2	20020107		
US 5786131	A	19980728	US 1996-678868	1996 0712

PRIORITY APPLN. INFO.: US 1994-266044 A 1994 0627

OTHER SOURCE(S): MARPAT 124:189530
AB The present invention relates to a radiation.-sensitive **resist** composition comprising (a) a radiation.-sensitive acid generator, (b) a androstane derivative, and (c) a copolymer binder.
IT **172615-57-5**
RL: TEM (Technical or engineered material use); USES (Uses)
(deep-UV **photoresists** containing)
RN 172615-57-5 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM G03F007-004
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST UV **photoresist** androstane acid generator
IT **Resists**
(**photo-**, deep-UV; containing photosensitive acid generators, androstane derivs., and copolymer binders)
IT 72145-62-1, tert-Butyl methacrylate-methacrylic acid-methyl methacrylate copolymer 122752-67-4, tert-Butylcholate 148441-54-7 169965-89-3, tert-Butyl methacrylate-isobornyl methacrylate-methacrylic acid-methyl methacrylate copolymer **172615-57-5** 174215-72-6
RL: TEM (Technical or engineered material use); USES (Uses)
(deep-UV **photoresists** containing)

L19 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:1002094 HCAPLUS
DOCUMENT NUMBER: 124:101673
TITLE: Design considerations for 193-nm **positive resists**
AUTHOR(S): Allen, Robert D.; Wan, I. Y.; Wallraff, Gregory M.; DiPietro, Richard A.; Hofer, Donald C.; Kunz, Roderick R.
CORPORATE SOURCE: IBM Almaden Research Center, San Jose, CA, 95120-6099, USA
SOURCE: ACS Symposium Series (1995), 614(Microelectronics Technology), 255-70
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Our approach to the design of pos., single layer **resists** for 193 nm lithog. will be discussed. Phenolic resins, the archetype in pos. **photoresist** materials, cannot be used as this wavelength due to optical opacity. Acrylic polymers combine the required optical transparency at 193 nm with easily tailored properties. With a design based on methacrylate terpolymers, we have recently developed a high resolution **pos. resist** for 193 nm lithog. with good imaging at both 193 and 248 nm. Our work has centered on gaining further insight into methacrylate polymer structure/property relationships, improving the imaging performance and finally increasing the etch resistance. Towards that end, we have employed a class of dissoln. inhibitors for 193 nm **resists** that are combined with methacrylate polymers to provide 3-component **resists**. A family of 5β-steroid dissoln. inhibitors that also increase etch resistance will be described. Imaging and etch performance of these **resists** will be disclosed, with

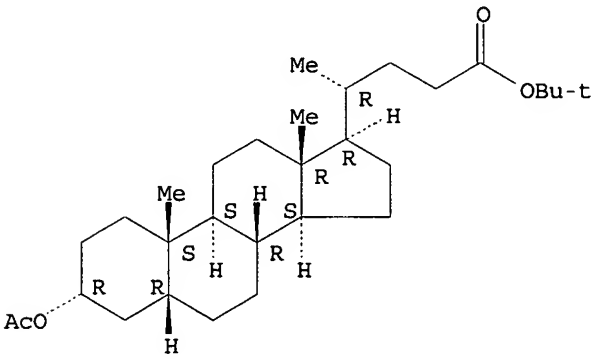
particular emphasis on the impact of these steroid dissoln. inhibitors on the thermal properties of the **resist**. These methacrylate chemical amplified **resists** show resolution capability below 0.25 μ, etch rates 20% higher than novolak resins, and dual wavelength (193/248 nm) imaging.

IT **172615-57-5**
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

RN 172615-57-5 HCAPLUS

CN Cholan-24-oic acid, 3-(acetyloxy)-, 1,1-dimethylethyl ester, (3α,5β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **photoresist** acrylic tetrapolymer steroid dissoln inhibitor

IT Etching
Solution process
(design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT Acrylic polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT Steroids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(5β-, design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT **Lithography**
(**photo**-, design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT **Resists**
(**photo**-, pos.-working, design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT Molecular structure-property relationship
(solubilization, design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

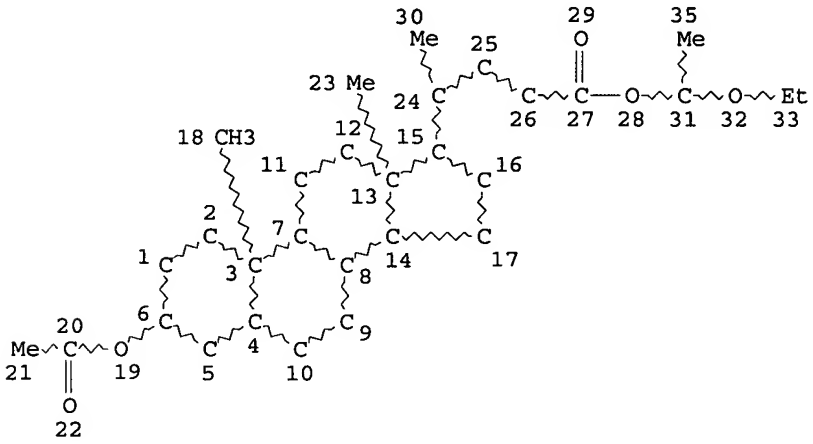
IT 1249-75-8, Methyl lithocholate 1448-36-8, Methyl cholate 3253-69-8, Methyl lithocholate acetate 10538-55-3, Methyl ursodeoxycholate 122752-67-4, tert-Butyl cholate 169965-90-6, tert-Butyl lithocholate 172615-56-4 **172615-57-5**
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; design of 193nm pos. **photoresists**

using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT 84563-54-2, Bis(p-tert-butylphenyl)iodonium triflate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

IT 72145-62-1, tert-Butyl methacrylate-Methacrylic acid-methyl methacrylate copolymer 169965-89-3, tert-Butyl methacrylate-isobornyl methacrylate-methacrylic acid-methyl methacrylate copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(**resist**; design of 193nm pos. **photoresists** using acrylic tetrapolymer and 5β-steroid dissoln. inhibitors)

=> => d que stat l20
L6 STR



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DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE
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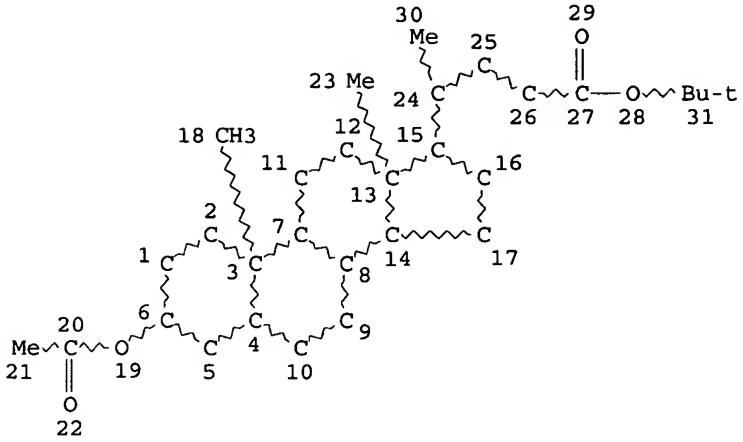
L10 STR



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NUMBER OF NODES IS 31

STEREO ATTRIBUTES: NONE

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L14           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8
L15          14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12
L17          14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 OR L15
L18             QUE  ABB=ON  PLU=ON  RESIST OR RESISTS OR PHOTORESIST?
                OR PHOTOMASK? OR (PHOTO# OR POSITIVE OR NEGATIVE)(A)(RE
                SIST# OR LITHOG? OR MASK?)
L19          11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17 AND L18
L20           3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17 NOT L19
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=> d l20 1-3 ibib abs hitstr hitind

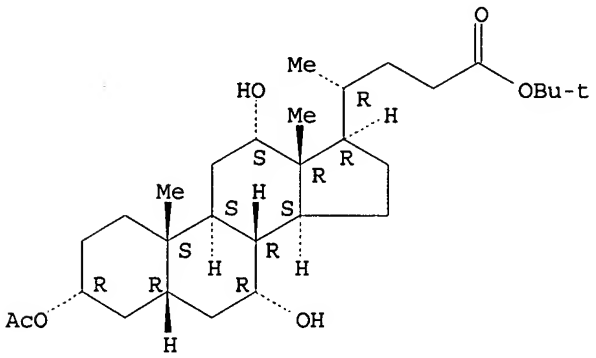
L20 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:158284 HCAPLUS
DOCUMENT NUMBER: 132:293319
TITLE: Metal-Catalyzed Acyl Transfer Reactions of Enol Esters: Role of Y5(OiPr)13O and (thd)2Y(OiPr) as Transesterification Catalysts
AUTHOR(S): Lin, Mei-Huey; RajanBabu, T. V.
CORPORATE SOURCE: Department of Chemistry, The Ohio State University, Columbus, OH, 43210, USA
SOURCE: Organic Letters (2000), 2(7), 997-1000
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 132:293319

AB Primary and secondary alcs. react with vinyl or isopropenyl acetate at room temperature in the presence of catalytic amts. (0.05-1 mol %) of Y5(OiPr)13O to give the corresponding esters. In selected cases, the yttrium catalyst promotes the selective O-acylation of amino alcs. without the formation of the amide. Enol esters also react with α-amino acid esters in the absence of a catalyst, at room temperature, to give the corresponding amides.

IT **130782-09-1P**

RL: SPN (Synthetic preparation); PREP (Preparation)
(transesterification of primary and secondary alcs. by enol esters catalyzed by Y5(OiPr)13O and (thd)2Y(OiPr))
RN 130782-09-1 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-7,12-dihydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

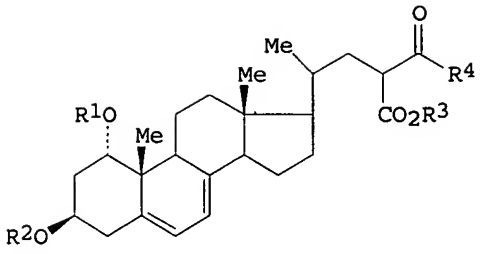


CC 21-2 (General Organic Chemistry)
IT 93-92-5P 120-51-4P 140-11-4P, Benzyl acetate 622-45-7P, Cyclohexyl acetate 6270-03-7P 21040-45-9P, (E)-Cinnamyl acetate 87751-69-7P 91048-16-7P **130782-09-1P** 142784-72-3P 264924-31-4P 264924-33-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(transesterification of primary and secondary alcs. by enol esters catalyzed by Y5(OiPr)13O and (thd)2Y(OiPr))
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1991:229231 HCAPLUS
DOCUMENT NUMBER: 114:229231
TITLE: Preparation of 24-oxosteroid derivatives
INVENTOR(S): Takahashi, Takashi; Ando, Yoshinori; Sakane, Soichi; Nakagawa, Sunao; Shiono, Manzo
PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03014558	A2	19910123	JP 1989-147628	1989 0609
PRIORITY APPLN. INFO.:			JP 1989-147628	1989 0609

OTHER SOURCE(S): MARPAT 114:229231
GI



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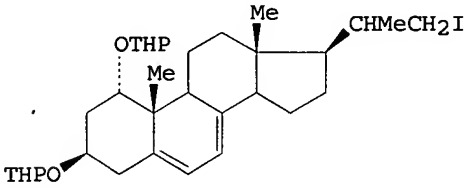


II

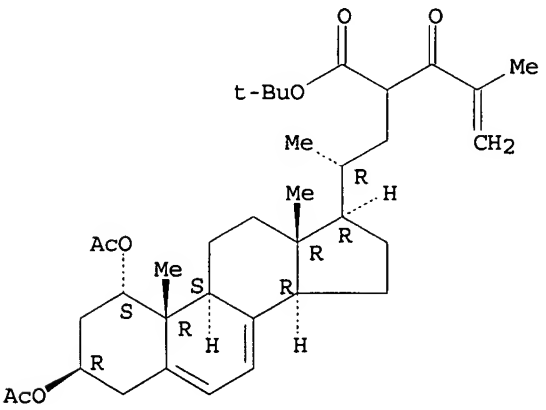
AB 24-Oxosteroids [I; R1,R2 = H, protecting group; R3 = alkyl, alkenyl, aralkyl, aryl; R4 = CX1X2X3 wherein X1 = H, (protected) OH, etc., X2,X3 = H, Me, (protected) hydroxymethyl, etc., X1X2 = CH2, CH2CH2], useful as intermediates for vitamin D3 derivs. in treating Ca metabolism deficiencies, are prepared A solution of 158.7 mg 60% NaH in DMF and 788 mg Me2CHCOCH2CO2CH2CH:CH2 in DMF was added to 1.38 g pregnadiene derivative II (THP = tetrahydro-2-pyranyl) in DMF and the solution was heated at 50° under N to give 1.90 g cholestadienone derivative I where R1 = R2 = THP, R3 = allyl, R4 = Me2CH.

IT **133856-16-3P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as intermediate for vitamin D3)

RN 133856-16-3 HCAPLUS

CN Cholesta-5,7,25-triene-23-carboxylicacid, 1,3-bis(acetyloxy)-24-oxo-, 1,1-dimethylethyl ester, (1α,3β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IC ICM C07C401-00
ICS C07J009-00

ICA A61K031-59

CC 32-7 (Steroids)

IT 69788-17-6P 70835-01-7P 133856-14-1P 133856-15-2P

133856-16-3P 133856-17-4P 133856-18-5P 133856-19-6P
133856-20-9P 133856-21-0P 133856-22-1P 133856-23-2P
133856-24-3P 133856-25-4P 133856-26-5P 133856-27-6P
133856-28-7P 133856-29-8P 133856-30-1P 133856-31-2P
133856-32-3P 133856-33-4P 133856-34-5P 133907-36-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as intermediate for vitamin D3)

L20 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1991:6933 HCAPLUS
DOCUMENT NUMBER: 114:6933
TITLE: New procedures for selectively protected cholic acid derivatives. Regioselective protection of the 12α-hydroxy group, and tert-butyl esterification of the carboxyl group
AUTHOR(S): Bonar-Law, Richard P.; Davis, Anthony P.; Sanders, Jeremy K. M.
CORPORATE SOURCE: Dep. Chem., Trinity Coll., Dublin, UK
SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1990), (8), 2245-50
CODEN: JCPRB4; ISSN: 0300-922X
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 114:6933
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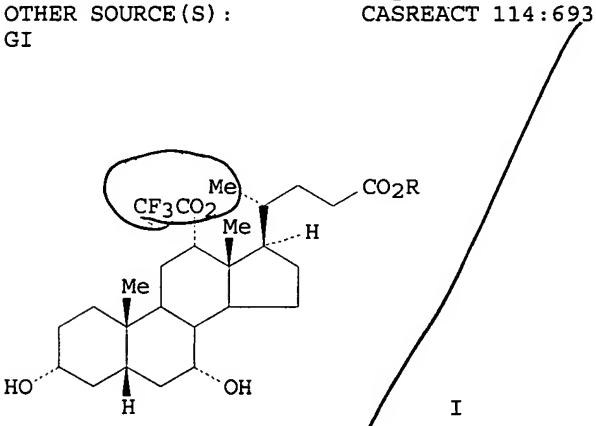
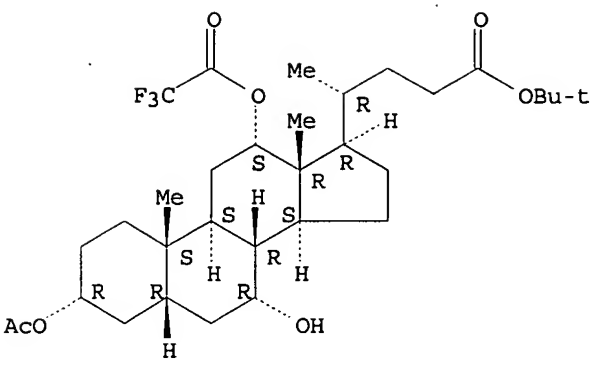


I

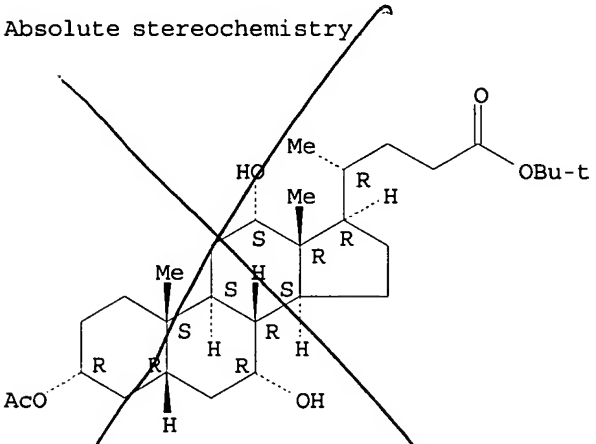
AB Effective procedures have been developed for the preparation of various selectively protected cholic acid derivs. Treatment of cholic acid or Me cholate with trifluoroacetic anhydride in THF, followed by partial deacylation under acidic conditions, leads to the 12α-trifluoroacetates I (R = H, Me) resp. Trifluoroacetic anhydride may also be used as a condensing agent in the synthesis of tert.-Bu cholates. Particularly notable is the preparation of the ester I (R = CMe3), which incorporates both these developments and is arguably the most efficient method yet for differentiating between positions 7 and 12 in the cholic acid nucleus.
IT **130782-07-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and acidic hydrolysis of)
RN 130782-07-9 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-7-hydroxy-12-[(trifluoroacetyl)oxy]-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT **130782-09-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 130782-09-1 HCAPLUS
CN Cholan-24-oic acid, 3-(acetyloxy)-7,12-dihydroxy-, 1,1-dimethylethyl ester, (3α,5β,7α,12α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



CC 32-6 (Steroids)
IT **130782-07-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and acidic hydrolysis of)
IT 7432-44-2P 16991-63-2P 122752-67-4P 130781-99-6P
130782-00-2P 130782-01-3P 130782-04-6P **130782-09-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

=>